Home Learning TV : Junior Science

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| **Segment lesson planning details** |  |
| Title for segment: | Seashells |
| Year levels *(e.g., Yrs1 – 3)*: | 1-3 |
| NZC learning areas: | Living world: Life processes - all living things have certain requirements so they can stay alive - the role of the shell in protecting shellfish.  Living World: Ecology - recognise that living things are suited to their particular habitat.  Nature of science: Understanding about science - scientists observe, make notes, make predictions and ask questions. |
| Purpose of lesson:  (What learners will learn) | Use seashells as a context for developing observation skills and think about the variety and beauty of our natural world. |
| Success Criteria – students will be able to:  (how they will know when they have learnt it) | Ākonga will be able to:   * explain that shells are houses for animals that are called molluscs * explain that shells keep the molluscs safe by protecting them from weather and predators * name and describe some different types of seashells/molluscs |
| **Segment production details** | |
| Equipment requirements: | Pencil, paper, PPT  Shells that the presenter may have at home (not essential) |
| Copyright requirements:  Please be specific: Source: (*Seven Sizzling Sausages* by Sam Smith –url link to the source), intended use (to demonstrate alliteration), Length (timings for video clips) | All images and video provided in the media zip folder below have been cleared for use |
| **Segment links and attachments *(list all links to recordings or attachments, the source and confirm that copyright permissions are granted)*** | |
| Links to recordings /resources | Filename: JS\_03\_Seashells\_MEDIA.zip |
| Attachments |  |

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| **Segment plan content** | | |
|  | Teaching and learning activities linked to purpose | High level script (key points/questions) |
| **Activate**: Activating prior learning, knowledge of contexts and relationships | Connecting with the audience  Linking with previous episodes  Introducing today’s topic  SLIDE 1: title page of PPT ‘Sounds of the sea’  SLIDE 2: Audio of sounds of the beach  Filename: JS\_03\_Beach sounds-MP3.mp3 | Kia ora koutou! How are you today?  [Welcome chat.]  Have you got paper and a pencil ready for drawing and writing like a scientist?  Have you watched some of the recent episodes? We’ve been exploring sound - how sound works. In the last episode, we thought about the sounds that birds make. We also thought about the different features of birds.  Today we’re going to think about life in the sea. I’ve called this episode ‘Sounds of the sea’.  [Words on screen]  The sound of the sea always reminds me of [presenter to include an anecdote - whilst being mindful that some viewers may not ever have been to the sea.]  Let’s listen to the sound of the sea together.  [Play Audio clip]  What does it make you think of? |
| **Learn**: Introducing learning  Reinforce routines, provide multiple exposure to concepts, and strategies. Scaffolding learning | Linking to prior experiences  [Note for presenter: Some of this script is inspired by the Junior Journal article ‘Super shells’ <https://instructionalseries.tki.org.nz/Instructional-Series/Junior-Journal/Junior-Journal-60-Level-2-2020/Super-Shells>  and the Junior Journal article ‘Seashells’  <https://instructionalseries.tki.org.nz/Instructional-Series/Junior-Journal/Junior-Journal-60-Level-2-2020/Seashells>]  SLIDE 3: - shells along a NZ shore line  Filename: S\_03\_SoundsOfTheSea\_NZbeach\_+MtMaunganui.jpg    SLIDE 4: Jayden & Matthew looking for shells  ​​Filename: JS\_03\_SoundsOfTheSea\_ChildrenShellCollecting.jpeg    SLIDE 5: Earrings and shell garden  Filename: JS\_03\_SoundsOfTheSea\_ShellGardenAndNecklace.png    Learning about science- how scientists identify carefully  SLIDE 6: Dr Alan Beu’s with the fossil shell collection at GNS Science in Wellington  Filename: JS\_03\_SoundsOfTheSea\_AlanBeuWithGNSShellFossilCollection.png    SLIDE 7: Photo of shell collection  Filename: JS\_03\_SoundsOfTheSea\_Shellollection.png    SLIDE 8: Child with shell to ear  Filename: JS\_03\_SoundsOfTheSea\_BoyWithShellToEar.jpg    SLIDE 9: Photo of conch shell  Filename: JS\_03\_SoundsOfTheSea\_conch photo.jpg    SLIDE 10: Photo of underside of conch shell  Filename: JS\_03\_SoundsOfTheSea\_Conch smooth.jpg    SLIDE 11: Conch snail  Filename: JS\_03\_SoundsOfTheSea\_ConchSnail.jpg    SLIDE 12: Hermit crab in Samoa  Filename: JS\_03\_SoundsOfTheSea\_HermitCrabSamoa.jpg    SLIDE 13: Photo of paua shells  Filename: JS\_03\_SoundsOfTheSea\_Paua.jpg    Creating connecting ideas to develop student understanding that all living things have certain requirements to stay alive  SLIDE 14: Photo of houses in snow (from Shirakawa in Japan)  Filename: JS\_03\_SoundsOfTheSea\_SlopingRoofHouseInSnowInShirakawa.jpg    Source: <https://www.123rf.com/photo_96039178_shirakawa-go-village-in-winter-japan-.html>  SLIDE 15: with both the house in the snow photo, and the paua  Filename: JS\_03\_SoundsOfTheSea\_SlopingRoofHouseInSnowInShirakawa.jpg and JS\_03\_SoundsOfTheSea\_Paua.jpg    SLIDE 16: Photo of rooftop gardens, houses in Istanbul, Turkey  Filename: JS\_03\_SoundsOfTheSea\_RoofGardens\_IstanbulTurkey.jpg    SLIDE 17: Image of a fale from Samoa  Filename: JS\_03\_SoundsOfTheSea\_SamoanFale.jpg    SLIDE 18: Photo of 4 shells  Filename: JS\_03\_SoundsOfTheSea\_TypesOfShells.png    Thinking about ways of recording in science  Developing observation skills - directing students to colour, shape and texture.  SLIDE 19: Boiled mussels  Filename: JS\_03\_SoundsOfTheSea\_BoiledMussels.jpg    SLIDE 20: Pipi in hands  Filename: JS\_03\_SoundsOfTheSea\_Pipi.jpeg    SLIDE 21: Photo of 4 shells  Filename: JS\_03\_SoundsOfTheSea\_TypesOfShells.png    Making inferences between what we observe about the shells and where the animal might live - its habitat.  Communicating in science requires explicit language, e.g. bivalve  SLIDE 22: underside of limpet  Filename: JS\_03\_SoundsOfTheSea\_UndersideofLimpet.jpg    SLIDE 23: Limpets on rocks  Filename:JS\_03\_SoundsOfTheSea\_LimpetsOnRock.jpg    SLIDE 24: under side of Cook’s turban shell showing operculum  Filename: JS\_03\_SoundsOfTheSea\_CooksTurbanCritter.jpg    In science we use our observations to make predictions  SLIDE 25: Mussel thread  Filename: JS\_03\_SoundsOfTheSea\_MusselThread.jpg    SLIDE 26: Mussel longlines  FILE NAME: JS\_03\_SoundsOfTheSea\_MusselLonglines.jpg    SLIDE 27: Green lipped mussels  Filename: JS\_03\_SoundsOfTheSea\_GreenLippedMussels.jpeg    Introducing the idea of camouflage- adaptations that help ensure survival  Also modelling how scientists ask questions- understanding about science  SLIDE 28: First page of journal Filename: JS\_03\_SoundsOfTheSea\_SeashellsTitlePage.png    SLIDE 29: Hamish Spencer and text  Filename: JS\_03\_SoundsOfTheSea\_HamishPageSeashells.png    SLIDE 30: Page 6 Seashells article  Filename: JS\_03\_SoundsOfTheSea\_Page6Seashells.png    SLIDE 31: Hamish Spencer and text  JS\_03\_SoundsOfTheSea\_HamishSpencerAnd\_Page5TEXTSeashells.png    SLIDE 32:  Filename: JS\_03\_SoundsOfTheSea\_IcelandHomesWithGrassRoof.jpg | Have you ever been to the beach?  If you’re watching this with someone, perhaps you can talk about some of the things that the beach makes you think about. If you’re watching on your own, what is something you could draw about being at the beach?    When I’m at the beach I love to cool off in those lovely waves and then wander along the shore collecting shells.  [Comment about image of the shoreline.]  And here’s an image of two friends of mine - Jayden and Matthew. They’re looking at shells, too - although they’re looking at the shells in some rock pools.  Some of you will recognise this spot - maybe you even live nearby. Do you know where it is? Yep, that’s right - New Plymouth, just by the pools.  Have you gone exploring along rock pools before?  Shells come in lots of different shapes, sizes, colours and textures.  Some people collect shells. They may make things with them, or put them in their gardens. Other people collect them as a hobby, identifying them and displaying them in their homes.  Scientists sometimes use big shell collections to check if they have identified new shells correctly.  This is Dr Alan Beu [show image], who has collected ancient shells that have become fossils, from across New Zealand. Many are now in the special collection at GNS Science in Wellington!  Look at the amazing shells in this collection. Which one is your favourite?  [Pause for children to have a good close look.]  Presenter to talk about the image, for example: Those bright coloured ones really stand out, don’t they? I think I will need to have two favourites. I love the bright orange one, here, for its bright colour, and I love the shape of the long skinny pointy one up in the corner. I think it might feel lovely and smooth in my hand and I would like to feel how pointy that tip is too.  Shells also come in lots of different sizes. Some are really tiny, and others can grow quite large.  Hey - did you know that if you hold shells up to your ear, you can hear the sound of the sea?  This is a conch shell [show image]. It belongs to one of my friends. Her dad used to blow it like a trumpet.  She couldn’t make the trumpet sound, but she did like to listen to her dad blowing on it. She thought it sounded like the sea was just over the hill, whispering in her ear.  She keeps it on a shelf with a photo of the beach behind it and she’s got some of the shells she’s collected in a little box beside it. It makes her think of her dad, and of times at the beach.  This is what the conch shell looks like underneath. Can you see the hole going inside the shell? That’s where the animal lives.  [Show image of the animal]  Did you know that?  Yep, all seashells have an animal living inside them.  [Perhaps you can make a comment - ‘imagine having eyes on stalks that you can use to look outside your door instead of getting up!’)  Usually, it’s the animal that makes the shell - although sometimes other animals, hermit crabs like this baby coconut crabs take over the shells of other animals once they’ve died.  Do you recognise this shell? [Show paua shell image]  That’s right - it’s a paua. What do you notice about the two different sides?  [Chat about this - the top is brown and rough, and seems to have other things growing on it, the bottom has a range of beautiful colours.]  Hmmm I need to think about why a shell might be so different on each side.  Why do you think they might be different?  This picture is a bit different. It’s a house in the snow. [Show image] What do you think the connection is between this house, and a shell?  Can you guess?  That’s right! Shells are like houses for sea animals.  Humans build houses to protect us from the weather and create a safe place for us to live.  And shellfish build their shells to keep themselves safe. [Show image.]  [Chat - Image of Japanese house in snow - sloped roof so that snow falls off rather than piling up, which would cause the roof to collapse]  Let’s look at some other houses that people live in. This shows flat roofed houses in Istanbul in Turkey, a crowded city where it gets really hot - the houses have flat roofs and people use them as balconies and gardens  And here is a fale in Samoa, which is also really hot and humid - the fale has got open sides, to allow the breezes through to help keep things as cool as possible]  Now let’s have a look at some shells.  Have you ever seen shells like these?  Some people like to eat mussels or kūtai. [Share an anecdote]  Other people like pipi and put them in sandwiches.  Let's look closely, like scientists, at these shells.  On your piece of paper, perhaps you could draw a picture of one of these?  Drawing is one way that scientists record their observations, what they notice.  I’m going to draw my shells in a column down this side so I have room to write some other things I notice beside them here.  [Presenter to do a drawing of each shell.]  Now I can write down some things beside it, things that I notice - lots of ridges, colours are cream, and brown patchy patterning.  When you’re looking like a scientist there’s such a lot to notice or observe.   * Presenter to talk about colours, shapes, textures. * Sometimes it's tricky to find the right descriptive words. Let's have a look at the mussel shell. It's almost an oval shape but with a slight bend here and a pointy end here. The pipi shell looks like a rounded triangle, two straight sides here but the third side here is rounded. * It can also be difficult to get a real sense of the texture from a photo. That’s why scientists sometimes refer to collections of real shells when they’re identifying a shell that they’re not familiar with - because of the limitations of photos. You can’t feel the texture from a photo, for example. * What do you *think* these might feel like, looking at them? I think the turban shell and the limpet would feel ridged and bumpy, don’t you?   Another thing that I know about, but that you can’t see from this picture, is that the pipi shells and kūtai shells come in pairs. They are called bivalves.  [show image]  These are boiled mussels, kūtai.  You can see the two shells still joined together, and the animal inside.  Mmm - yum!  And here’s a handful of pipi.  Let’s look at these shells again. Where do you think they live? Remember that the shell protects the animal inside.  With bivalves, the two sides can close up tightly around the animal. Have you found this before - have you ever seen someone trying to open up a tightly closed mussel/ kūtai or pipi?  Bivalves tend to burrow into the sand. [Anecdote - e.g., my friend used to collect pipi when she was little, and she used to tell me about her feet slowly sinking into the wet sand as she dug for pipi.]  Other shells cling to rocks.  This is what a ngākihi/limpet looks like underneath. Can you see the animal?  It’s got to cling tightly to rocks to keep itself safe.  How many ngākihi/limpets can you see clinging to the rocks in this image?  [Counting as you look at the image.]  These other smaller shells are barnacles - tiotio or werewere.  They often cover rockpools, and walking over them in bare feet can be pretty sore because they’re so rough.  Here’s the under-side of our turban shell, ngāruru.  [Show image]  Can you see the shadow where the hold is where the animal lives?  And this [pointing] is the operculum - that acts as the trapdoor, which the animal snaps shut to keep itself safe.  Let’s keep using our observation skills, looking closely and thinking about what we see.  Can you work out what this is? [show image with mussel threads]  I’ll give you a clue - it’s one of the shells we’ve been looking at, and it’s a bivalve - remember - they’re the shells that come as pairs.  It’s a mussel, a kūtai, but when we look at this image, we can see that there are a whole lot of things sticking out of the kūtai. These strings are called byssus and the kūtai makes them so it can hold onto a solid surface.  Mussel farms make use of these strings in their farms - they put long lines down into the sea, and the mussels attach to these lines, like in this image [show image].  The lines can then be pulled up and the mussels can be easily collected - kaimoana ready for eating!  Here’s another image - these are green-lipped mussels. I bet you can tell why!  [Show image of green lipped mussels]  Scientists often ask questions as they notice things. Hmmm, I’m wondering about the different colours. I wonder why the kūtai are green and black-ish colours.  What do you think?  What’s that? Did you say camouflage?  That’s when something has the same colours as its surroundings. It helps it to blend in, so that it’s not so easy to spot.  But why would the mussel be black and green?  Let’s read to find out. I’m reading from this article - it’s called Seashells, written by Feana Tu‘akoi (listen at <https://instructionalseries.tki.org.nz/Instructional-Series/Junior-Journal/Junior-Journal-60-Level-2-2020/Seashells> for pronunciation)  This article introduces us to Hamish Spencer.  [Read the text]  [Interesting background for the presenter - Hamish is also a Science Advisor to MBIE.]  [Read next page]  Now - what were we trying to find out? We were curious about the green of green-lipped mussels.  Let’s read.  Ahhh, did you hear why a lot of our shellfish are plain and dark? Because our seaweed and rocks are plain and dark. But maybe the bright green of the green-lipped mussels is to match green seaweed?  I also wonder if you noticed the word **mollusc** - that’s a scientific name for the animal that lives in a seashell. Sometimes we call them shellfish - but they’re not really fish, are they? They’re soft-bodied creatures with no bones. And we’ve just learned that they’re called molluscs.  We also found out that there are people who are shell scientists. I don’t think you would need to wear a white coat to walk along the beach and collect shells, would you? But you might need to wear a hat to protect you from the sun, and even some sunglasses to protect your eyes. I’ve never thought of a scientist wearing sunglasses, have you?  Let's listen to this part of the article, and find out more about Hamish the shell scientist -  [Reading]  [Chat about being able to see unusual things as part of your job.]  We learned a bit more about camouflage, too, didn’t we - we learned about a snail that glues shells onto its shell to camouflage itself. It sounds like that mollusc is a bit of a home decorator!  Sometimes people try to camouflage their houses so they don’t stand out and disturb the natural landscape  *(Image of houses in Iceland with grassy rooftop)*  These houses are covered in grass and look to be built into the hill. That would protect them from storm winds and help them to look part of the natural surroundings. You know I am thinking that they almost remind me of ngākihi or limpets clinging tightly to the ground. Limpet houses! |
| **Respond**: Providing opportunities to use and practice | Recap of the key parts of the episode  SLIDE 33: REPEAT Photo of 4 shells  Filename: JS\_03\_SoundsOfTheSea\_TypesOfShells.png    Providing an opportunity to respond | Let’s think about what we’ve covered today.  We started off thinking about the sounds of the sea.  Then we talked about seashells, and the wide variety you can find washed up on the shore.  These shells all used to have animals living in them - animals we now know are called molluscs.  We then talked about different types of shells - we looked at them carefully, and we talked about what we noticed.  We thought about how the shells of the molluscs are like houses - they protect the mollusc that lives inside.  Do you think you could design a mollusc and its home? You would need to think about:   1. Where it lives (this will suggest whether it has two shells- is a bivalve, or just one shell like the limpet) 2. What colour it needs to be (Does it need to be camouflaged and match the colour of where it lives?) 3. What patterns and texture it has 4. How big it is     You could look at your drawings from earlier to give you ideas. [show drawings from earlier]  If you live near the sea perhaps you could collect some of the shells that creatures are no longer using and see how many different types of shells you can find.  You could even work out the ones that are bivalves, and used to have two shells joined together. Or you can group your shells in other ways.  Scientists often think about similarities and differences between things so they can classify and name them. They also try to work out the relationships between shells, working out the shell’s whakapapa. |
| **Share**: Learner and parent reflection on learning and engagement and what they can do next | Concluding the episode  SLIDE 34: Page 8 Seashells ‘Hamish says’  Filename: JS\_03\_SoundsOfTheSea\_Seashells\_Page8HamishSays.png    SLIDE 35: SLH logo | I’ve learned a lot about shells today.  I’ve also felt like a scientist, looking carefully at shells to notice their shape, texture and colour, and using scientific words like mollusc and bivalve.  Before we go, let’s have a quick think about caring for our moana, our oceans, and our tātahi, our beaches.  [Reading]    [Shout out to the Science Learning Hub for support planning this episode]  [Sign off] |

**QA Panel section – complete blue sections:**

**QA Panel overview**

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| **Practical**   * Presenters will have the equipment, training, and capacity to record high quality material, supported by effective production capability. * Sign language translators will be able to be sourced and be able to work within time and resource constraints. * Pre-recorded content can be sourced and licences cleared in time for broadcast * Broadcast is able to reach and support all learners regardless of personal circumstances with no barriers * Presenters have cultural capability to ensure Te Reo Māori and Tikanga Māori are treated appropriately | **Pedagogical**   * Segment is part of an overall programme which emphasises reading for pleasure as a key feature * The role of whānau in supporting learning rather than *teaching* is clear and is preserved in the design of segments and the overall programme * Days include rich opportunities to practice what learners already know and spark learner interest in the world. * Relationships with peers, teachers and schools are maintained * There is no direct assessment of learner outcomes linked to broadcast but opportunity exists for learners and parents to observe and respond to progress (which could be shared with the teacher) |

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| **Rating criteria:**   1. Does not meet 2. Will meet with modifications 3. Meets criteria | **Overall rating:**   * All 3s = approve * All 2s and 3s =conditional approval (specify changes in feedback) * Any 1s = requires judgment to be made. | **Overall judgment outcomes:**   * Approved * Conditional approval - revise and return * Not approved – return for resubmission |

**QA Panel scoring – complete blue sections**

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| **Pedagogy criteria:**  **Delivers or supports** | **Rating** | **Pedagogy feedback** |
| Quality teaching and learning experience | 3 |  |
| Objectives are clear and learning is linked to objectives | 3 |  |
| Instructions are clear (verbal and written) and easy to follow without additional support | 3 |  |
| Supports social engagement, interaction and participation | 3 |  |
| As a segment and as an overall programme, allows learners to make expected progress in learning and this progress is visible and can be observed | 3 |  |
| **Overall rating (add scores)** | 15 |  |

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| **Appropriateness criteria** | **Rating** | **Appropriateness feedback** |
| Contains content relevant to learners from a range of cultural backgrounds | 3 | Some people don’t eat shellfish – or other meat |
| Uses Te Reo appropriately | 3 | Question about dialectical difference for shellfish names – needs Puti to advise, Perhaps state at the beginning which region these words come from – and that other regions might have different words. A standard response for all Te Reo terms – especially species names. |
| Activities are engaging and interesting | 3 |  |
| Segment is stand alone and does not require ongoing engagement or prior activity | 3 |  |
| Expectations are achievable for learners working from home ( e.g. whānau modelling reading for pleasure, not expected to play role of teachers ) | 3 |  |
| **Overall rating (add scores)** | 15 |  |

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| **Accessibility criteria** | **Rating** | **Accessibility Feedback** |
| Is appropriate for a range of levels of learner within an age band | 3 |  |
| Can be effectively signed in NZSL | 3 |  |
| Allows for multiple means of engagement with tasks and multiple levels of demand | 3 |  |
| Allows participation of learners with a range of physical capabilities | 3 |  |
| Does not require families to buy resources to take part | 3 |  |
| **Overall rating (add scores)** | 15 |  |

**QA Panel outcome – complete blue sections**

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| **Total QA rating (add all scores)** | **QA panel outcome** |
| **35** | **Approve**  **~~Conditional approval~~**  **~~Not approved~~** |
| **Additional conditions notes:** | |
| **Dialect question; diet question** | |

**Administrator section – Part A - on first submission – complete yellow sections**

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| **Unique ID:** | |  | | --- | | JNRSCI\_S2 - EP 3 - Seashells | |

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| **Licensing check:** | ***TBC*** |

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| **Panel members assigned: *(delete as applicable)*** | | | |
| **Chris** |  |  |  |
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| **Panel task type:** | | | |
| **Full QA** | | **Review conditional changes** | |

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| **Date sent to QA panel:** |  |
| **Due date:** |  |

**Administrator section – Part B - after QA – complete yellow sections:**

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| **Date QA received:** | **10/09/2021** |
| **Action required:**  ***(Delete as applicable)*** | **Approved – submit to production**    **Conditionally approved – return to segment developer for revision**    **Does not meet – return to developer for new submission** |

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| **Date returned to segment developer:** |  |
| **Date revised segment received:** |  |
| **Date revised segment sent to QA panel:** |  |
| **Date revisions approved:** |  |

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| **Date sent to production team:** |  |
| **Filenet updated** |  |